

**Summary**

The present invention relates to a radar level gauge (1) comprising an antenna (2), a tank sealing (3), an electronics unit (4) and a waveguide feed (5) between the electronics unit (4) and the antenna (2). The waveguide (5) is essentially straight and has a 90°-symmetric cross section and is further arranged to accommodate two essentially orthogonal waveguide modes. The waveguide (5) further has a length (l) below two times the range resolution of said radar level gauge (1). The present invention further relates to a method for improved radar level gauging using a radar level gauge (1) as above.

(Fig. 1)